



2024 VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

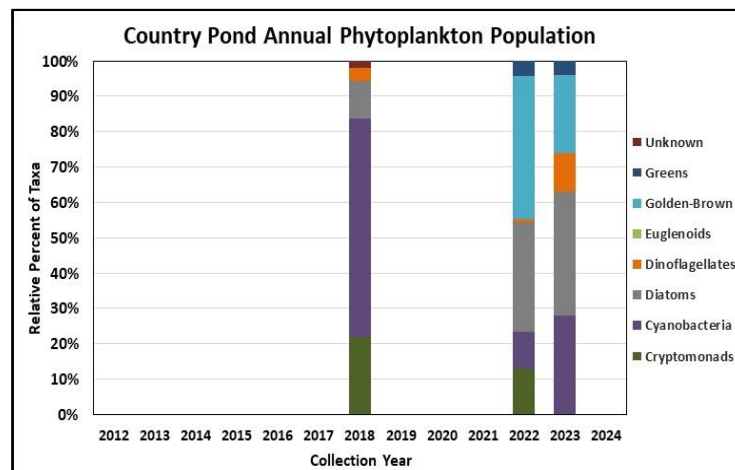
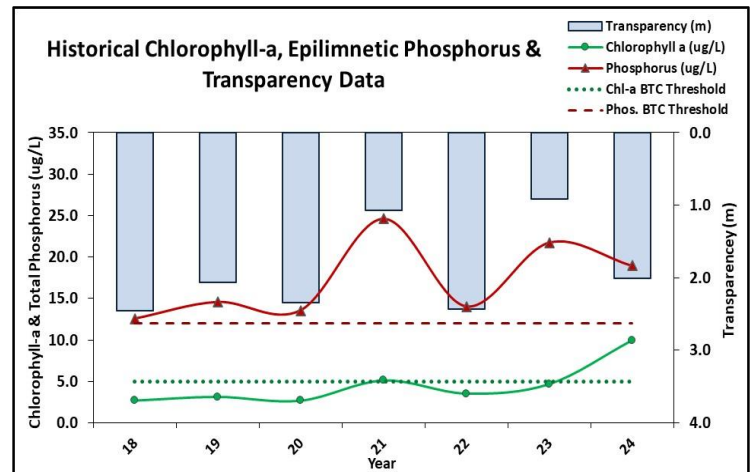
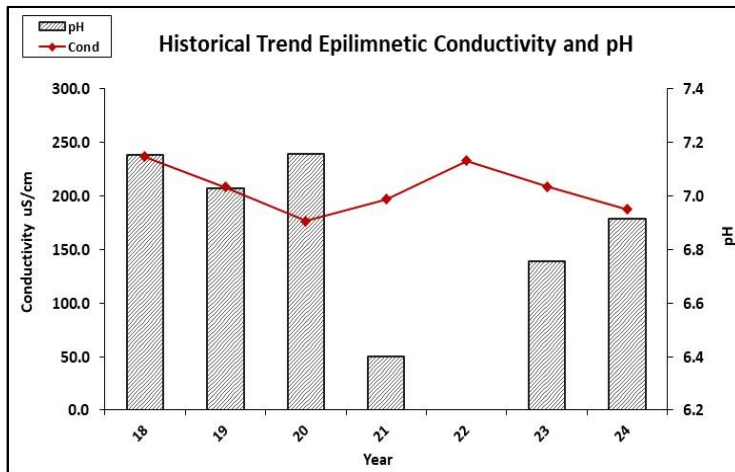
COUNTRY POND, NEWTON

RECOMMENDED ACTIONS: Great job monitoring water quality in 2024! Pond nutrient (phosphorus) levels remained elevated in 2024 resulting in elevated levels of algal growth throughout the summer, particularly in May, when a Cyanobacteria watch was issued. In contrast with record summer rainfall in 2023, drier conditions in 2024 resulted in improved water clarity due to lighter water color conditions. The rapid change in elevated nutrients and algal growth is concerning. The increased intensity of storm events and associated stormwater runoff, droughts, and fluctuating climate conditions resulting in shorter periods of ice cover, warmer water temperatures, and longer periods of thermal stratification can accelerate the eutrophication process. This highlights the importance of managing and minimizing [stormwater](#) runoff from the surrounding watershed, particularly shoreline properties and impervious surface such as roads, driveways, and roof tops. Consult the Watershed Management Plan for recommendations on high priority areas and target these for remediation. Encourage local road agents and private winter maintenance companies to obtain [Green SnowPro Certification](#). Educate shorefront property owners on ways to reduce stormwater runoff using the [NH Homeowner's Guide to Stormwater Management](#) and encourage them to become certified [LakeSmart](#) through NH LAKES' lake-friendly living program. Keep up the great work!

HISTORICAL WATER QUALITY TREND ANALYSIS

PARAMETER	TREND	PARAMETER	TREND
Conductivity	N/A	Chlorophyll-a	N/A
pH (epilimnion)	N/A	Transparency	N/A
		Phosphorus (epilimnion)	N/A

HISTORICAL WATER QUALITY GRAPHICS





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OBSERVATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels fluctuated within an elevated range and were highest and indicative of an algal bloom in May. Average chlorophyll level increased from 2023 and was much greater than the state median and the threshold for mesotrophic lakes. Visual inspection of historical data indicates relatively stable chlorophyll levels since 2018.
- ◆ **CONDUCTIVITY/CHLORIDE:** Epilimnetic (upper water layer), Metalimnetic (middle water layer), Hypolimnetic (lower water layer), Northwest Inlet, Outlet, and South Inlet conductivity levels remained elevated and greater than the state median. Epilimnetic, Hypolimnetic, Northwest Inlet, and South Inlet chloride levels were elevated and greater than the state median yet were less than the state chronic chloride standard. Visual inspection of historical data indicates relatively stable epilimnetic conductivity levels since 2018.
- ◆ **COLOR:** Apparent color measured in the epilimnion indicates the water was highly tea colored and was darkest in June. Average water color was almost twice as light as that measured in 2023.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were elevated and highest in June and July. Average epilimnetic phosphorus level decreased slightly from 2023 but remained much greater than the state median and the threshold for mesotrophic lakes. Metalimnetic phosphorus levels were elevated on each sampling event and increased as the summer progressed. Hypolimnetic phosphorus levels were elevated and increased slightly as the summer progressed due to phosphorus release from bottom sediments under anoxic (no dissolved oxygen) conditions. Visual inspection of historical data indicates increasing (worsening) epilimnetic and hypolimnetic phosphorus levels since 2018. Northwest Inlet phosphorus levels fluctuated in an average range. South Inlet phosphorus level was elevated in September and lab data noted colored water with some sediment. Outlet phosphorus level was slightly elevated in June and the turbidity of the sample was also slightly elevated.
- ◆ **TRANSPARENCY:** Transparency measured without (NVS) the viewscope was below average (worse) in May and June likely due to elevated algal growth, and increased (improved) to an average range from July through September. Average NVS transparency increased (improved) from 2023. Visual inspection of historical data indicates variable NVS transparency since monitoring began. Viewscope (VS) transparency was generally higher (better) than NVS transparency and a better measure of actual conditions.
- ◆ **TURBIDITY:** Epilimnetic turbidity levels were elevated in June following significant storm event, and in July potentially due to algal growth. Metalimnetic turbidity levels were elevated and lab data notes algal growth in June, July and August samples. Hypolimnetic turbidity levels were greatly elevated due to formation and accumulation of organic compounds under anoxic conditions. South Inlet turbidity level was slightly elevated in September due to sediment. Outlet turbidity level was slightly elevated in June. Northwest Inlet turbidity levels were low.
- ◆ **pH:** Epilimnetic, Metalimnetic, Northwest Inlet, Outlet, and South Inlet pH levels were within the desirable range of 6.5-8.0 units. Hypolimnetic pH levels fluctuated below the low end of the desirable range. Visual inspection of historical data indicates relatively stable epilimnetic pH levels since 2018.

Table 1. 2024 Average Water Quality Data for COUNTRY POND - KINGSTON

Station Name	Alk. (mg/L)	Chlor-a (ug/L)	Chloride (mg/L)	Color (pcu)	Cond. (us/cm)	Total P (ug/L)	Trans. (m)		Turb. (ntu)	pH
							NVS	VS		
Epilimnion	17	9.93	54	100	187.3	19	2.02	2.44	1.37	6.92
Metalimnion	-	-	-	-	177.6	24	-	-	3.55	6.51
Hypolimnion	-	-	48	-	172.0	34	-	-	13.50	6.45
Northwest Inlet	-	-	54	-	191.6	15	-	-	1.08	7.07
Outlet	-	-	-	-	190.6	14	-	-	0.90	7.06
South Inlet	-	-	58	-	195.0	19	-	-	1.36	7.00

NH Median Values

Median values generated from historic lake monitoring data.

Alkalinity: 4.5 mg/L **Chlorophyll-a:** 4.39 ug/L
Conductivity: 42.3 uS/cm **Chloride:** 5 mg/L
Total phosphorus: 11 ug/L **Transparency:** 3.3 m
pH: 6.6

NH Water Quality Standards

Numeric criteria for specific parameters. Water quality violation if thresholds exceeded.

Chloride: > 230 mg/L (chronic) **Turbidity:** > 10 NTU above natural
E. coli: > 88 cts/100 mL (beach)
E. coli: > 406 cts/100 mL (surface waters)
pH: between 6.5-8.0 (unless naturally occurring)

